

Digital Multi-Day Max/Min Current Soil Sensor Error Check

Lab and Field Guide

Task

Check the accuracy of the soil sensor to see if it needs to be dug out and recalibrated.

What You Need

- ☐ Soil probe thermometer from *Soil Temperature Protocol*
- ☐ *Digital Max/Min Thermometer Calibration and Reset Data Sheet*

In the Lab and Field

1. Calibrate a soil probe thermometer following the *Calibrating the Soil Thermometer Lab Guide of the Soil Temperature Protocol*.
2. Open the door to the instrument shelter.
3. Select an undisturbed place about 15 cm from the location of the soil temperature probe.
4. Measure the soil temperature at a depth of 10 cm at this spot following the *Soil Temperature Protocol Field Guide*.
5. Record this temperature in the Soil Sensor Error Check section of your *Digital Max/Min Thermometer Calibration and Reset Data Sheet*.
6. Turn on the soil temperature display of the digital multi-day max/min thermometer by pressing the soil sensor ON button (upper right button).
7. Read the temperature reported by the soil sensor of the digital thermometer and record it on your *Digital Max/Min Thermometer Calibration and Reset Data Sheet*.
8. Close the cover flap of the digital thermometer and the door of the instrument shelter.
9. Repeat steps 2 to 8 four more times, waiting at least one hour between measurements.
10. Calculate the average of the soil thermometer readings.
11. Calculate the average of the digital soil sensor readings.
12. Calculate the soil sensor error by subtracting the average of the five digital soil sensor readings (from step 10) from the average of the five soil sensor readings (from step 11)
13. If the absolute value of the soil sensor error is greater than or equal to 2° C, dig-out this sensor and recalibrate both the air and soil sensors following the *Digital Multi-Day Max/Min Thermometer Sensor Calibration Field Guide*. Otherwise, leave the digital soil sensor in the ground and recalibrate only the air sensor.